

ments, being inner on one, middle on the next, and outer on the third; but a portion of the inner remains inner throughout.

Digestive system. The salivary glands are 4 mm. long, flat and simple, bent abruptly outward beyond the middle, tapering slightly and regularly to a bluntly rounded tip.

The malpighian vessels originate in an oval gland or sac, 0.45 mm. long and 0.2 mm. broad, a short distance beyond which the under branch is thrown off and immediately afterward the two others. The under branch passes forward in a straight and not a tortuous course, and is proportionally about as long as in *Danaus*; the upper branch extends forward for a distance of 3.75 mm.; the lateral to the point where the silk vessels bend, 7 mm. from its origin.

Nervous system. The cephalic lobes are globular. The cords connecting the second and third body-ganglia run together for nearly one-quarter the distance from the second backward, then diverge considerably, and again converging, enter the third ganglion at a perceptible distance apart; nearly the same is repeated between the first and second ganglia, but

they diverge nearly from their origin; between the first body-ganglion and the suboesophageal ganglion the cords are parallel, but separate, and a little parted in the middle. The third ganglion lies in the middle of its segment, the fourth at the anterior edge of its segment, and only 0.75 mm. from the third; the fifth in the middle of the anterior half of its segment; the eleventh ganglion is considerably longer than broad, and the pair of posterior, backwardly directed, diverging nerves is larger than any of the others, and may be looked upon as the continuation of the connecting cords between the other ganglia.

Glandular system. The basal thread of the silk vessels is straight and not tortuous; the basal half of the stouter vessel is flattened; it extends backward as far as the third abdominal segment and then turns abruptly, with a slight forward curve, to the upper side of the body, where it continues in a straight line as far, apparently, as the end of the sixth abdominal segment. The length of the initial thread or duct is 3.25 mm.; of the portion of the ribbon or vessel upon the under surface 4 mm.; of that upon the upper surface 5.25 mm.

(To be continued on p. 319.)

COLOR OF THE LIGHT EMITTED BY INSECTS.

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SOME specimens of *Pyrophorus noctilucus* Linn., from the West Indies, that were brought to the Academy of natural sciences, at Philadelphia, gave out a very bright-green light from the two dorsal prothoracic spots, and also from the ventral surface near the base of the abdomen. Gosse (Ann. and mag. nat.

hist., 1848, s. 2, v. 1, p. 200) says they give out a rich yellow-green light when flying and a green light when in captivity. *Photuris pensylvanica* gives out (sometimes at least) a very decided green light, and *Photinus pyralis* a yellow light from the ventral surface of the two or three last segments of the abdomen.